ROUND 11 CAPITAL PROJECT NOMINATION FORM
LAKE TAHOE FEDERAL SHARE EIP CAPITAL PROJECTS
APPENDIX K

Project Name:	Restoration of Fire Adapted Meadow Ecosystems	**EIP Number: (*Required*)**	4
Federal Agency Sponsor: (*Required*)	US Forest Service	**Contact:**	Richard Vacirca
Threshold:	SC,F,W,SR,V	**Phone Number:**	530-543-2768
Threshold Standard:	SC2,F2,W1,W2,SR2,SR3,V1	**Email:**	rvacirca@fs.fed.us
FUNDING REQUESTED IN THIS ROUND:	**$** 375,000		

Federal Share EIP Consideration

Select "yes" or "no" for each question. If you have a "yes" response, briefly describe. ***Projects must meet one or more of these 5 items.***

1. **Does the project involve federal land? If yes, is the federal land involved important to successful implementation of the project?** — ***Yes*** ☒ ***No*** ☐

The goal of this project is to restore meadows that occur on the federal land. Implementation will occur at a minimum of three meadows on land managed by the Lake Tahoe Basin Management Unit.

2. **Is this project identified in the EIP? If yes, please ensure the EIP number is identified in the above project information box. If no, provide a description of the projects contribution to the EIP program.** — ***Yes*** ☒ ***No*** ☐

3. **Does the project involve the conservation of a federal or regional threatened, rare, endangered, or special interest species?** — ***Yes*** ☒ ***No*** ☐

There are currently eight sensitive plant species that occur in meadows found in the Lake Tahoe Basin. This project is designed to improve meadow habitat and will thus improve habitat for sensitive meadow plant species. Current research has shown that meadow species show potential for recovery across a wide range of forest encroachment restoration efforts (conifer removal). Additionally, the restoration of riparian habitat within meadows could improve habitat for Sierra Nevada yellow-legged frog, willow flycatcher and other riparian dependant species.

4. **Does the project involve an identified federal interest such as the detection and eradication of non-native invasive species (aquatic or terrestrial)? If yes, identify the species?** — ***Yes*** ☒ ***No*** ☐

The project will incorporate design features that will control and prevent spread of non-native invasive terrestrial plant species. Where feasible complete eradication will occur.

5. **Does the project contribute to supporting implementation of capital projects in the EIP? Such projects that fulfill this function would include technical assistance, data management, and/or resource inventories?** — ***Yes*** ☐ ***No*** ☒

Check all Capital Focus Area(s) that apply:

- ☒ 1. **Watershed and Habitat Improvement**
- ☒ 2. **Forest Health**
- ☐ 3. **Air Quality and Transportation**
- ☒ 4. **Recreation and Scenic**

Check all that apply (must meet a minimum of one category):

- ☒ 1. **Continued emphasis on forest ecosystem health/fuels reduction projects considering the LTBMU Stewardship Fireshed Assessment and Lake Tahoe Basin Multi-Jurisdictional Fuels Reduction and Wildfire Prevention Strategy.**

- ☒ 2. **Continued implementation of projects approved in Rounds 5 through 10 which implement the EIP. Project proposal should clearly describe the phase/product being produced along with the consequence of not completing the project phase proposed for Round 10.**

  List Rounds and funding:

  Round 7 - $93,600 (SNPLMA Project Number - F086)
  Round 9 - $225,000 (SNPLMA Project Number - F136)

- ☐ *3.* **Project is consistent with and contributes toward TMDL pollutant reductions within the four source categories (atmospheric, urban & groundwater, forested uplands, and stream channel).** ***NOTE: If "yes", then please respond to questions in the accomplishments section of the nomination proposal.***

- ☐ 4. **Control of aquatic invasive species and prevention and/or detection of new aquatic invasive species.**

Project Nomination Proposal Outline

Project Summary (a brief summary which clearly describes the proposed project –maximum 200 words)

- Summarize ONLY this Round 11 project**.**

Round 11 funding is for implementation of the fire adapted ecosystem restoration project. Funding will be used to treat lodgepole pine encroachment. Thinning and prescribed fire will be utilized to address encroachment. Implementation will occur at three meadows (approximately 100 acres per meadow), dependent on the management tools required (thinning and/or prescribed fire).

Round 11 funding will also support post-project effectiveness monitoring that will identify success of project and adaptive management for long term management of meadow systems in the Lake Tahoe Basin.

Project Description

Introduction

- Provide project background which explains the situation and state the problem and how it will be addressed.

Note: *Focus needs to be the project in Round 11 not a history of an ongoing project or program.*

In the Sierra Nevada of California, meadows play important roles in hydrology, erosion control, nutrient cycling, provision of animal food and shelter, and human recreation. Meadows are also important in maintaining hydrological processes downstream, conserving stream flows, channel erosion, and nutrient loads (Carter 1986, Johnston 1991, Johnston 1993).

Meadow drying is one of the most significant forms of change that has occurred in the Lake Tahoe Basin and many other places in the Sierra Nevada, primarily as a result of past overgrazing (Wagoner 1886, Hughes 1934, Ratliff 1985, Menke et al. 1996). Montane meadows have been identified among the most vulnerable and impacted habitat types of the Sierra Nevada (Kattelmann and Embury 1996, USFS 2004), and the Tahoe Regional Planning Agency (TRPA 2002) has identified meadow ecosystems as an important focus area for restoration efforts in the Lake Tahoe Basin.

Droughts are a familiar stressor on Basin vegetation; whereas, climate change is a newly recognized threat to the condition of Sierran meadows that may be a significant contributor to droughts and is likely to exacerbate the problem of meadow drying. Because of their high sensitivity to drying, montane meadows have been suggested as early indicators of environmental changes associated with climate change (Debinski et al. 2004).

Meadow drying has been observed to cause the replacement of native wetland perennials with non-native annuals (Burcham 1970, Hagberg 1995) and upland species. Meadow drying is also believed to be a major reason for the invasion of Sierran meadows by the native lodgepole pine (*Pinus contorta*). Meadow restoration via the removal of lodgepole pine is currently a major focus area in the Lake Tahoe Basin. Prescribed fire and thinning of lodgepole pine are two management tools that can be used to maintain meadow health.

Round 11 will continue implementation activities in three selected meadows on the LTBMU. The site-specific selection of these meadows is currently being identified in the NEPA analysis, which was funded in Round 9.

- Describe what Round 11 is specifically funding; list the number of years the requested funding will cover; briefly describe how this project links into previous and future projects, and identify other round funding.

NOTE: *Focus should be on finishing current/phased projects. If project is new in Round 11, clearly identify if the project is for planning or implementation and how it will be completed with Round 11 funds. Identify if Round 12 or other funds will be needed to complete the project. Please identify total non-SNPLMA funds that are being contributed/dedicated to the proposed Round 11 project and the source of those funds.*

Round 7 funding was used to complete the Meadow Restoration Pilot Project, which provided information regarding native vegetative response to the use of fire in meadows as well as lodgepole mortality post meadow burn. Data from this project was used to develop the restoration plan as well as prioritize meadows for large scale treatment (SNPLMA Round 9 and 11).

Round 9 funding is currently being used to a) re-survey permanent meadow plots to provide vegetative trend data to support proposed action development in the NEPA analysis, b) complete NEPA by August 2010 and c) implement vegetation treatment on 1 meadow (approximately 100 acres) including lodgepole pine removal and burning. Vegetative trend data was gathered in the summer of 2009 and is currently being analyzed for proposed action development.

Round 11 funding is for continued implementation of the fire adapted ecosystem restoration project. Funding will be used to treat lodgepole pine encroachment. Management tools such as thinning and prescribed fire will be utilized to address encroachment. Implementation will occur at three meadows (approximately 100 acres per meadow). The three meadows will be chosen by using experimental plot data gathered during the fall of 2008 and 2009 (funded in Round 7) and information from vegetation trend and condition transects. The meadow treatment prioritization and selection process is currently underway and will directly tie to the NEPA proposed action. Round 11 funding will also support post-project effectiveness monitoring that will identify success of project and adaptive management for long term management of meadow systems in the Lake Tahoe Basin.

Thinning implementation will occur between 2011 and 2013. Burning will occur 1 year post thinning operations, 2012-2014. Monitoring will occur two years post implementation.

- Describe the "readiness" of this project to move forward (urgency, capacity, capability, environmental documentation, interagency agreements, etc)

The readiness of this Round 11 project is supported by two previously SNPLMA funded efforts, which provide the foundation for implementation. First, the pilot meadow burning project funded in Round 7 was implemented in the fall of 2008 and 2009. Data gathered from the experimental burn project along with information collected in vegetation trend and condition plots will support site-specific meadow selection. Second, proposed action development and completion of NEPA was funded in Round 9. This planning effort is underway and will be completed by August 2010.

The readiness of this project is further supported by the need to do active management in Sierra Nevada meadows as climate change continues to affect these land types. Conservation of meadow landscapes is critical for sensitive aquatic and terrestrial species, as well as maintaining surface and ground water table regimes.

- Describe partnerships for this project. (if applicable, project should identify committed/secured partner funding and/or other partner contributions (describe) and how it is integrated into the project)

Partners in meadow management on the LTBMU include UC Davis and the Washoe Tribe. UC Davis researchers will provide analytical support and input during monitoring plan development. Washoe Tribe may provide labor for implementation activities as the tribe maintains a high interest in meadow conservation in Lake Tahoe basin.

Note: *The form requests information about project goals, objectives, accomplishments, and questions the program is designed to answer across several different sections. These issues are closely linked and your individual responses should provide a cohesive description.*

Goal – Purpose and Need ("larger" statement of future expected outcome – usually not measurable)

The goal is to restore montane meadows in the Lake Tahoe basin to a desired fire-adapted condition in which they support plant communities that function within the natural range of variability, meadow processes (physical and biological) are comparable to historic conditions under the current climatic regime, herbaceous species composition is predominately composed of native wetland (obligate/facultative) plants, and meadows provide a wide range of habitat.

Objectives (specific measurable statements of action which when completed will move towards achieving the goal)

Note: *Objectives will form the basis for the milestones/deliverables to be identified in Appendix B-8*

- Describe how fulfilling objectives will contribute to the achievement of one or more environmental thresholds (air quality, water quality, soil conservation, vegetation, fisheries, wildlife, scenic, noise, recreation). Provide measures if applicable. For example: acres treated, miles of stream restored for each objective.

Objective 1: Reduce conifer and upland species invasion through thinning activities in three meadows (approximately 100 acres per meadow). Thinning activities will occur where analysis identifies recent invasions (within the last 100 years) that threaten sustainability of the meadow system.

Objective 2: Re-establish fire in three meadows that have a historic fire regime, as data supports incorporation of fire into the system. Fire will reduce cover of lodgepole recruits and reduce xeric derived upland herbaceous vegetation.

Objective 3: Increase water availability and meadow wetness by significantly reducing the presence of conifer species through management identified in objective 1 (thinning) and objective 2 (fire).

The above objectives contribute to the attainment of the following threshold standards:

- Soil Conservation: SC2 – Stream Environment Zones
- Fisheries: F2 – Stream Habitat
- Wildlife: W1 – Special Interest Species; W2 – Habitats of Special Significance
- Scenic Resources: SR2 – Scenic Quality; SR3 – Public Recreation Areas
- Vegetation: V1 – Common Vegetation (Relative Abundance of Meadows)

- Describe the estimated environmental risks from unintended consequences of the proposed project (if applicable)**.**

Implementation actions, such as prescribed fire could unintentionally increase terrestrial invasive plant species where seed source may occur. However, project design features will be incorporated to reduce this potential threat. In addition, the pilot project was designed to address this concern and to date no threat has been identified.

Accomplishments

- Describe the anticipated project accomplishments (i.e. products or identifiable environmental benefits being produced or implemented under this project)

Note: *Differentiate between direct and/or primary project effects and secondary and/or overall watershed effects.*

Direct Accomplishments in the **three** selected meadows include:

- Conifer removal.
- Introduction of fire.
- Reduction of upland plant species.
- Reduction of non-native invasive plant species in project meadows where currently known to exist.

Watershed Accomplishments in the **three** selected meadows include:

- Increased water availability.
- Increased abundance and diversity of wetland (obligate/facultative) plant species.
- Enhanced habitat for sensitive plants and riparian dependent terrestrial and aquatic vertebrate and invertebrate species.

- Describe how the project results/accomplishments will be communicated and made available to the public.

The information created from this project will be disseminated to three audiences: 1) the general public, 2) other resource agencies, and 3) the broader scientific community. The audiences will be informed respectively through the USFS website, public/interagency meetings, and peer-reviewed publications.

Additionally, the results and accomplishments will be summarized in the Annual Forest Monitoring Program Report, as well as project specific monitoring reports. Project specific monitoring reports will be produced one to five years post project implementation, depending on variables being monitored and questions to be answered.

- If you checked "yes" for the project being consistent with and contributes to TMDL pollutant reductions please consider and integrate the following in the project description:

  a) Describe whether, and how, the project demonstrates advanced, alternative, or innovative practices.

  Not applicable.

  b) If project includes project level monitoring, describe ability of proposed monitoring strategy to contribute to the state of TMDL knowledge. Also describe if purpose of the capital project is to conduct data collection and/or analysis related to Lake Tahoe clarity.

  Not applicable.

  c) Describe treatment approach for reducing pollutants and/or measures to address connectivity between pollutant sources and Lake Tahoe or its tributaries. Identify target pollutants, and, to the degree feasible, provide quantitative estimates of project effectiveness at reducing pollutant loads (and/or a commitment to provide post-project estimates).

  Not applicable.

  d) If appropriate, describe whether, and how, the project can be combined or coordinated with other TMDL implementation projects.

  Not applicable.

Monitoring

- Describe the project monitoring that will be implemented as part of this project including:

  - List the questions the monitoring program is designed to answer.

  Will removal of lodgepole pine in meadows increase groundwater level and meadow wetness?

  Did increase in groundwater level and meadow wetness increase the abundance of amphibian and other native special interest wildlife species?

  Does large scale burning of meadows change vegetation community structure (i.e. changing community from graminoid dominate to herbaceous dominate)?

  Does removal of conifers and/or introduction of fire change the ratio of wetland species (i.e. obligate, facultative, upland, etc.)?

  Is sensitive plant habitat improved as a result of project activities, based on plant

community data and canopy cover?

Did project implementation change abundance of willow species (*Salix* spp.)?

- Describe any coordination with, or input from, the science community on monitoring and adaptive management that has occurred on the development of this nomination and what changes (if any) to the project were made as a result of this input.

Round 7 dollars were used to fund UC Davis researchers to answer preliminary management questions regarding plant species response and lodgepole mortality based on the introduction of fire into meadow systems. This research has guided the development of the restoration plan and ultimately the proposed action for Round 9 and 11 implementation.

- Describe the methods and strategies (i.e. monitoring, research, or both) that will be used to verify whether the project goals and objectives have been met? (*Note: A detailed monitoring plan and/or research plan is not required, however, enough detail must be provided to allow someone that is unfamiliar with the project to understand and evaluate the proposed methods and strategies.*)

Concurrent with proposed action development will be monitoring plan development. Monitoring activities will involve both monitoring of long term trend meadow plots and ground water levels based on piezometer measurements.

- Describe whether the monitoring or research associated with this project fits into or is part of a larger monitoring or research program.

Trend transect meadow monitoring is a regional monitoring program. Implementation activities and monitoring data specific to this project will help guide other forests in Region 5 and the Sierra Nevada specifically on meadow response to restoration activities. In addition, this project will help guide future vegetation management projects where such activities have multiple objectives for achieving desired ecological conditions for forested uplands and meadow landscapes.

- Describe how information from the monitoring and/or research will be used to improve the continued performance of the proposed project or future similar projects.

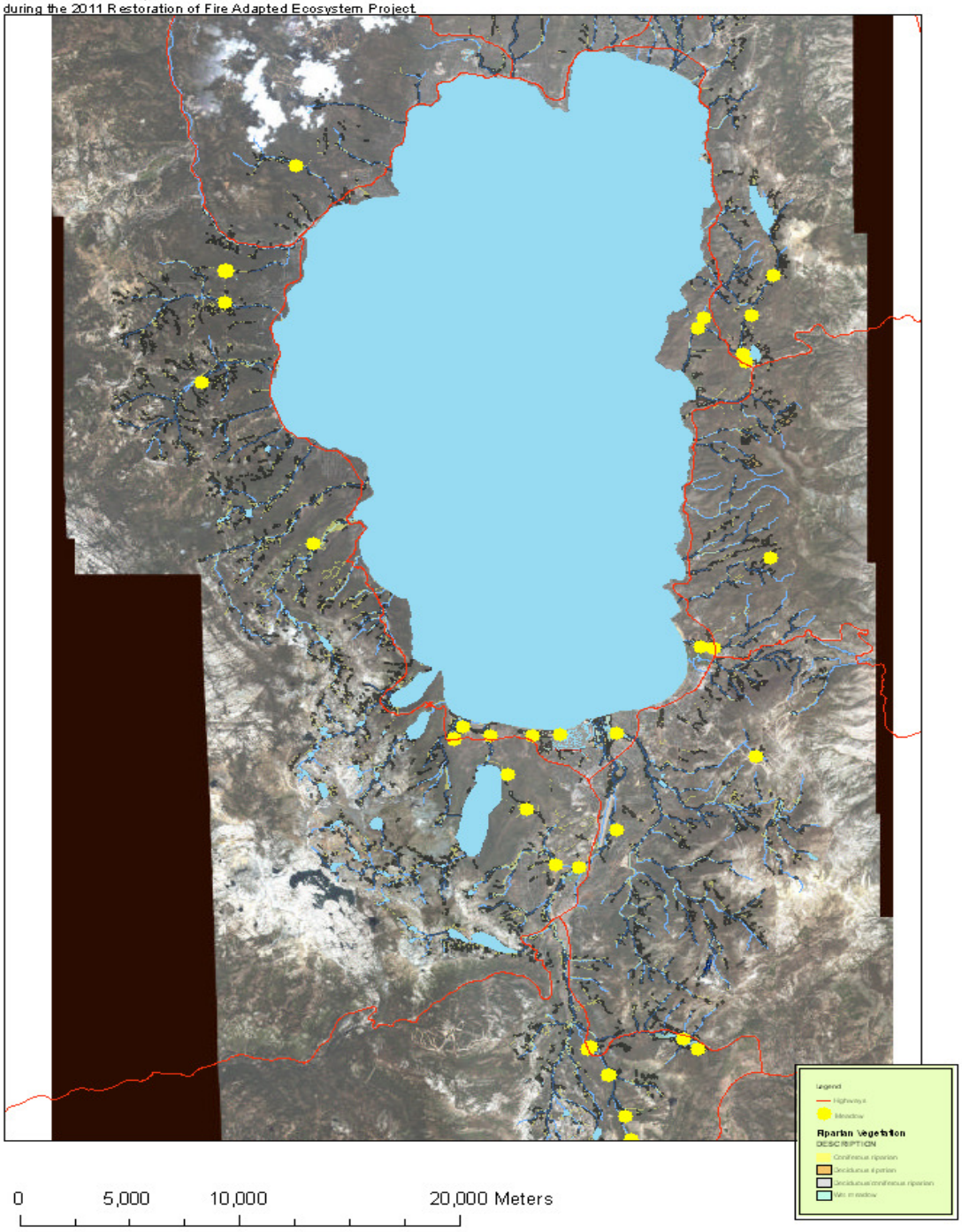
Implementation activities will be continually assessed and project design will be adaptively managed based on results. Rounds 7, 9, and 11 target restoration activities in three to eight meadows. There are a total of over 49 meadows in the LTB and this project will help guide future management for meadows on a larger scale.

Attachments

- If applicable, include 8 ½ X 11 map depicting the project

CURRENT MEADOW DISTRIBUTION FROM WHICH SPECIFIC SITE SELECTION WILL OCCUR

Figure 1: Lake Tahoe Basin meadows with trend and condition plots. From these meadows, three to eight will be selected for implementation activities during the 2011 Restoration of Fire Adapted Ecosystem Project



Appendix B-8

LAKE TAHOE RESTORATION PROJECTS
ESTIMATED NECESSARY EXPENSES & KEY MILESTONE DATES

Project Name:	Restoration of Fire Adapted Meadow Ecosystems	Agency:	US Forest Service
Prepared by:	Richard Vacirca	Phone:	530-543-2768
SNPLMA Project #:	F086; F136	EIP #:	4

Identify estimated costs of eligible reimbursement expenses:

1. Planning, Environmental Assessment and Research Costs (specialist surveys, reports, monitoring, data collection, analysis, NEPA, etc.)	$ 50,000	13 %
2. FWS Consultation – Endangered Species Act	$ 0	0 %
3. Direct Labor (Payroll) to Perform the Project	$ 150,000	40 %
4. Project Equipment (tools, software, specialized equipment, etc.)	$ 10,000	3 %
5. Travel (including per diem where official travel status required to carry out project, such as serve as COR, experts to review reports, etc.)	$ 5,000	1 %
6. Official Vehicle Use (pro rata cost for use of Official Vehicles when required to carry out project)	$ 5,000	1 %
7. Cost of Contracts, Grants and/or Agreements to Perform the Project	$ 100,000	27 %
8. Other Direct and Contracted Labor: Agency payroll for the Contracting Officer to do project procurement, COR, Project Inspector, Sec. 106 Consultation if required, NEPA Lead, Project Manager, Project Supervisor, and subject experts to review contracted surveys, designs/drawings, plans, reports, etc.; Also covered is the cost to contract for a Project Manager and/or Project Supervisor if contracted separately from other project contracts)	$ 10,000	3 %
9. Other Necessary Expenses (see Appendix B-9)	$ 45,000	12 %
TOTAL:	$ 375,000	100 %

Estimated Key Milestone Dates:

Milestones/Deliverables:	Date:
Complete thinning of confiers in 3 meadows (approximatley 100 acres per meadow)	11/30/2013
Complete prescribe fire treatments in 3 meadows	11/30/2014
Final Completion Date: 12/30/2016	

COMMENTS:

Milestone dates reflect timing of implementation for prescribed fire treatments, which are dependant on local weather conditions. Final completion date reflects timing to bring post-project monitoring to a close.